



Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

GENDER AND RACE DIFFERENCES IN AGING-RELATED ALTERATION IN MYOCARDIAL SYSTOLIC FUNCTION ASSESSED BY 2D SPECKLE TRACKING ECHOCARDIOGRAPHY OVER A 20 YEAR FOLLOW-UP: THE CARDIA STUDY

Poster Contributions

Poster Hall B1

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Session Title: Non Invasive Imaging: Strain Imaging by Echocardiography

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Background: To evaluate gender and race differences in subclinical left ventricle (LV) systolic function in young adulthood and middle age. We assessed circumferential peak strain in a prospective cohort with echocardiograms obtained 20 years apart.

Methods: Included were 1,312 Coronary Artery Risk Development in Young Adults (CARDIA) African-American and Caucasian participants with 2D Speckle Tracking Echocardiography measurements at Year-5 and Year-25. Circumferential peak strain was acquired using Acuson (Siemens) and Artida (Toshiba) at Year-5 and Year-25 respectively, with parasternal short axis LV mid-wall layer analyzed with 2D wall motion tracking software. Year-5 strain measurements were calibrated to account for vendor differences. Gender and race differences were assessed by comparison of means and multivariable linear regression models, adjusted for baseline strain, demographics, traditional cardiovascular risk factors, change in risk factor and chronic risk exposure as appropriate. More negative values of circumferential strain indicate greater circumferential shortening or better function.

Results: Age of CARDIA participants was 29.7 ± 3.6 years at Year-5, 59.5% were female and 52.8% Caucasian. Circumferential shortening decreased overall from $-16.6 \pm 3.1\%$ to $-15.4 \pm 2.8\%$, $p < 0.001$ over 20 years. In multivariable risk adjusted models, women had greater circumferential shortening than men at Year-25 (-15.7% SE 0.10) vs (-15.0% SE 0.12) $p < 0.001$ and Year-5 (-16.9% SE 0.11) vs (-16.0% SE 0.13) $p < 0.001$, but there were no gender differences in 20 year change in circumferential shortening. Caucasians had greater circumferential shortening compared to African-Americans at Year-25 (-15.7% SE 0.11) vs (-15.0% SE 0.12) $p < 0.001$ but not Year-5 (-16.6% SE 0.12) vs (-16.5% SE 0.13) $p = 0.59$. Caucasian race (β -0.81, SE 0.20, $p < 0.001$) was associated with less decrease in shortening over 20 years than African-American race.

Conclusion: Women have better circumferential shortening than men in both young adulthood and middle age. Caucasians have better circumferential shortening than African-Americans at middle age because of a less steep decline in shortening over 20 years.